

## Head Injury Criterion Application to the Aerospace Environment

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One of the means of compliance for demonstrating the safety of seats is to conduct dynamic tests according to the various Federal Aviation Administration regulations. During these tests it is important to determine if there are any hazardous objects within the strike envelope of an Anthropomorphic Test Device (ATD) head or if any objects that the ATD's head would strike could potentially cause an injury. The main method for evaluating this injury mechanism is to use the head injury criterion (HIC). HIC is calculated from resultant head acceleration after contact in the aerospace environment. However, there are differences in how HIC is applied in the aerospace environment versus the automotive environment. These differences can make it difficult to assess the overall safety of a system when head contact with an inflatable restraint is expected. In these situations it is recommended that harmonization with the automotive construct be applied. This includes lowering the acceptance level, reducing the time window and also incorporating a neck load requirement. A comparison will be made of the different HIC constructs and the inclusion of a neck injury requirement. Data from several tests will also be reviewed with plans for future testing to gather additional data.